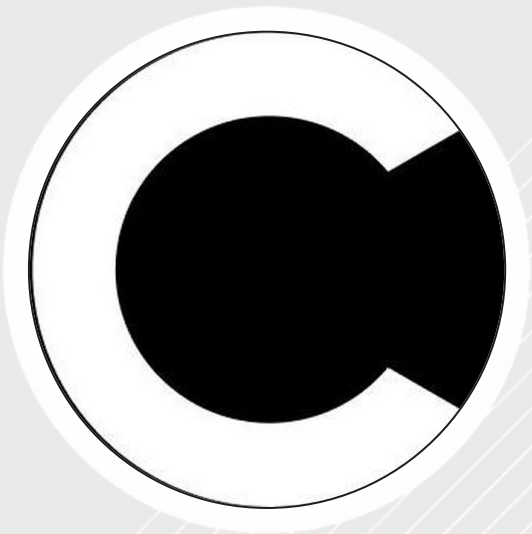
SPYWOLF

Security Audit Report



Completed on

June 12, 2023

OVERVIEW

This audit has been prepared for **CAVEDAO** to review the main aspects of the project to help investors make make an informative decision during their research process.

You will find a a summarized review of the following key points:

- ✔ Contract's source code
- ✔ Owners' wallets
- ✔ Tokenomics
- ✔ Team transparency and goals
- ✔ Website's age, code, security and UX
- ✔ Whitepaper and roadmap
- ✔ Social media & online presence

The results of this audit are purely based on the team's evaluation and does not guarantee nor reflect the projects outcome and goal

- SPYWOLF Team -

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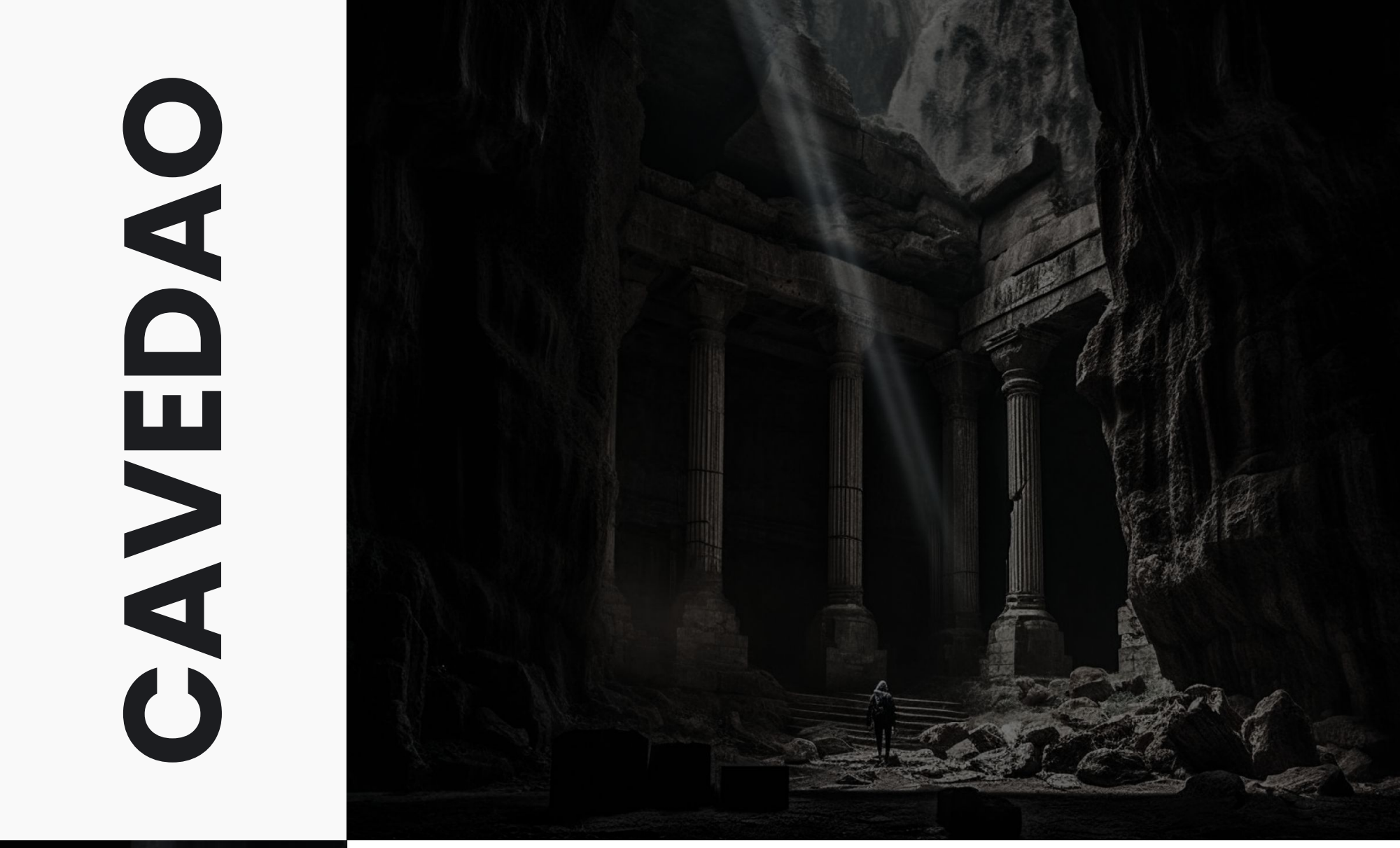
CAVEDAO



PROJECT DESCRIPTION

According to their website:

With inspiration from the great philosopher Plato and his work “Allegory of The Cave”, the web3 space will experience things that never have been done before. Only if the true followers show their allegiance to the $CAVE and It’s elemental powers.

People will be able to pledge their following to the $CAVE by staking their mysterious $CAVE tokens rewarding elemental attributes or pure aether as a reward.

Release Date: Presale starts in June, 2023

Category: Staking

CONTRACT INFO

Token Name
GROTTO(DAO)

Symbol
GROTTO

Contract Address
0xc6730f0665299330b305BA5afDf75eFF3FDF9Fa8

Network
Binance **TESTNET**

Language
Solidity

Deployment Date
Jun 12, 2023

Verified?
Yes

Total Supply
333,333

Status
Not launched

TAXES

Buy Tax
25%

Sell Tax
25%

*Taxes can be changed in future.

Our Contract Review Process

The contract review process pays special attention to the following:

- Testing the smart contracts against both common and uncommon vulnerabilities
- Assessing the codebase to ensure compliance with current best practices and industry standards.
- Ensuring contract logic meets the specifications and intentions of the client.
- Cross referencing contract structure and implementation against similar smart contracts produced by industry leaders.
- Thorough line-by-line manual review of the entire codebase by industry experts.

Blockchain security tools used:

- OpenZeppelin
- Mythril
- Solidity Compiler
- Hardhat

TOKEN TRANSFERS STATS

Transfer Count	TESTNET
Uniq Senders	TESTNET
Uniq Receivers	TESTNET
Total Amount	TESTNET
Median Transfer Amount	TESTNET
Average Transfer Amount	TESTNET
First transfer date	TESTNET
Last transfer date	TESTNET
Days token transferred	TESTNET

SMART CONTRACT STATS

Calls Count	TESTNET
External calls	TESTNET
Internal calls	TESTNET
Transactions count	TESTNET
Uniq Callers	TESTNET
Days contract called	TESTNET
Last transaction time	TESTNET
Created	TESTNET
Create TX	TESTNET
Creator	TESTNET

VULNERABILITY CHECK

Design Logic	Passed
Compiler warnings.	Passed
Private user data leaks	Passed
Timestamp dependence	Passed
Integer overflow and underflow	Passed
Race conditions and reentrancy. Cross-function race conditions	Passed
Possible delays in data delivery	Passed
Oracle calls	Passed
Front running	Passed
DoS with Revert	Passed
DoS with block gas limit	Passed
Methods execution permissions	Passed
Economy model	Passed
Impact of the exchange rate on the logic	Passed
Malicious Event log	Passed
Scoping and declarations	Passed
Uninitialized storage pointers	Passed
Arithmetic accuracy	Passed
Cross-function race conditions	Passed
Safe Zeppelin module	Passed
Fallback function security	Passed

THREAT LEVELS

When performing smart contract audits, our specialists look for known vulnerabilities as well as logical and access control issues within the code. The exploitation of these issues by malicious actors may cause serious financial damage to projects that failed to get an audit in time. We categorize these vulnerabilities by the following levels:

High Risk

Issues on this level are critical to the smart contract's performance/functionality and should be fixed before moving to a live environment.

Medium Risk

Issues on this level are critical to the smart contract's performance/functionality and should be fixed before moving to a live environment.

Low Risk

Issues on this level are minor details and warning that can remain unfixed.

Informational

Information level is to offer suggestions for improvement of efficacy or security for features with a risk free factor.

FOUND THREATS

⚠ Medium Risk

The function sendViaCall() which is used to distribute ETH received from fee tokens swap is public. Anyone without restrictions can call it and withdraw the contract's current balances.

```
function _distributeTaxes(uint256 amount) internal {
    uint256 _burnSplit = burnSplit;
    uint256 _treasurySplit = treasurySplit;
    uint256 _rewardsSplit = rewardsSplit;
    uint256 _treasuryAndRewardsSplit = _treasurySplit.add(_rewardsSplit);
    uint256 burnAmount = amount.div(100).mul(_burnSplit);
    amount = amount - burnAmount;
    _transfer(address(this), DEAD, burnAmount);
    _swapTokensForEth(amount);
    uint256 contractETHBalance = address(this).balance;

    if(contractETHBalance > 0) {
        sendViaCall(treasuryWallet, contractETHBalance.div(_treasuryAndRewardsSplit).mul(_treasurySplit));
        sendViaCall(rewardsWallet, contractETHBalance.div(_treasuryAndRewardsSplit).mul(_rewardsSplit));
    }
}

function sendViaCall(address payable _to, uint256 amountETH) public payable {
    // Call returns a boolean value indicating success or failure.
    // This is the current recommended method to use.
    (bool sent, bytes memory data) = _to.call{value: amountETH}("");
    require(sent, "Failed to send Ether");
}
```

- Recommendation:
  - sendViaCall() function should be declared as internal or private
  - Consider adding stuck ETH withdraw function with access control too

Informational

Owner can set buy/sell fees up to 10%.
Combined buy+sell = 20%.
When fees are above 0, there will be certain amount of tokens that will be deducted from every transaction that users make.
Deducted amount will be as much as the fees % from total amount that user had bought, sold and/or transferred.

```
function reduceFee(uint256 _feePercentage) external onlyOwner{
    require(_feePercentage <= 10 || _feePercentage < feePercentage);
    // 10% or less than before required
    feePercentage = _feePercentage;
    emit ConfigurationChange("feePercentage", _feePercentage);
}
```

Owner can exclude address from fees.
When address is excluded from fees, the user will receive the whole amount of the bought, sold and/or transferred tokens.

```
function setExcludeFromFee(address _address, bool _excluded) external onlyOwner {
    isExcludedFromFee[_address] = _excluded;
    emit ConfigurationChange("isExcludedFromFee", _excluded);
}
```

Informational

Owner can withdraw any tokens from the contract with exception of ETH. When this function is present, in cases tokens sent into the contract by mistake or purposefully, contract's owner can retrieve them.

```
function manualSendToken() external onlyOwner{
    IERC20(address(this)).transfer(msg.sender, balanceOf(address(this)));
}

function withdrawERC20(IERC20 token) external onlyOwner {
    uint256 balance = token.balanceOf(address(this));
    bool sent = token.transfer(msg.sender, balance);
    require(sent, "Failed to send token");
}
```

RECOMMENDATIONS FOR

GOOD PRACTICES

1. Consider fundamental tradeoffs
2. Be attentive to blockchain properties
3. Ensure careful rollouts
4. Keep contracts simple
5. Stay up to date and track development

CAVEDAO

GOOD PRACTICES FOUND

- ✔ The owner cannot mint new tokens after deployment
- ✔ The owner cannot stop or pause the contract
- ✔ The owner can set a transaction limit, but can’t lower it than 1% of total supply
- ✔ The smart contract utilizes "SafeMath" to prevent overflows

There is no information about initial tokens distribution based on the project's whitepaper and/or website.

TOKENOMICS

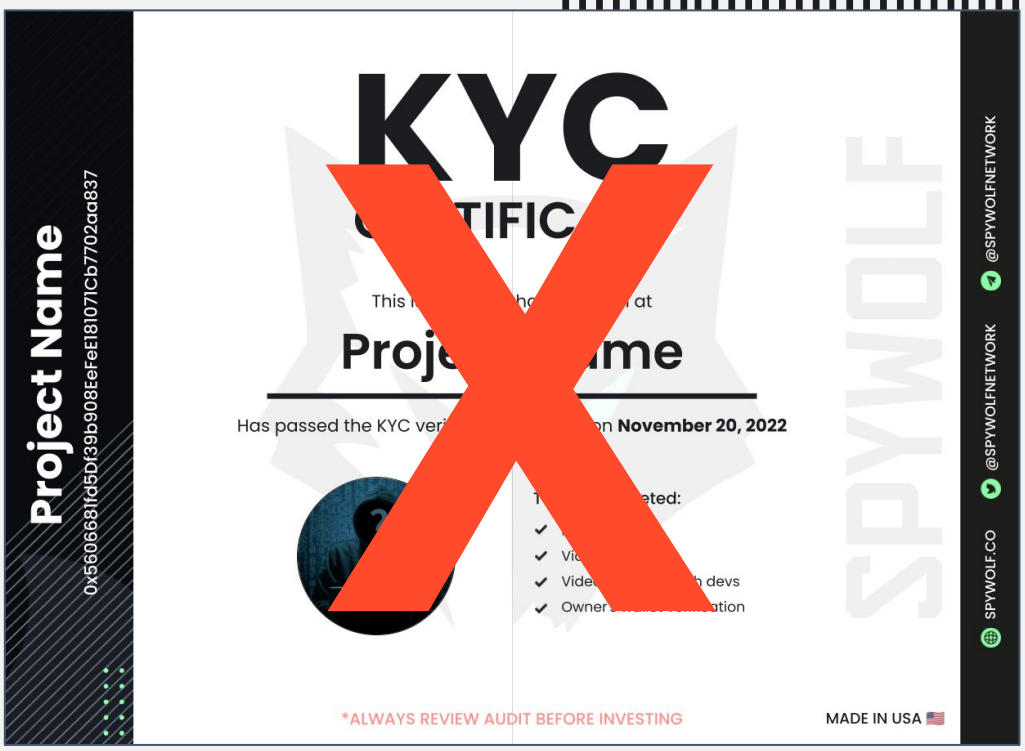
THE TEAM

⚠️ The team is annonymous

KYC INFORMATION

⚠️ No KYC

We recommend the team to get a KYC in order to ensure trust and transparency within the community.



WEBSITE

Website URL
https://www.cavedao.io/

Domain Registry
https://www.namecheap.com/

Domain Expiration
2024-05-30

Technical SEO Test
Passed

Security Test
Passed. SSL certificate present

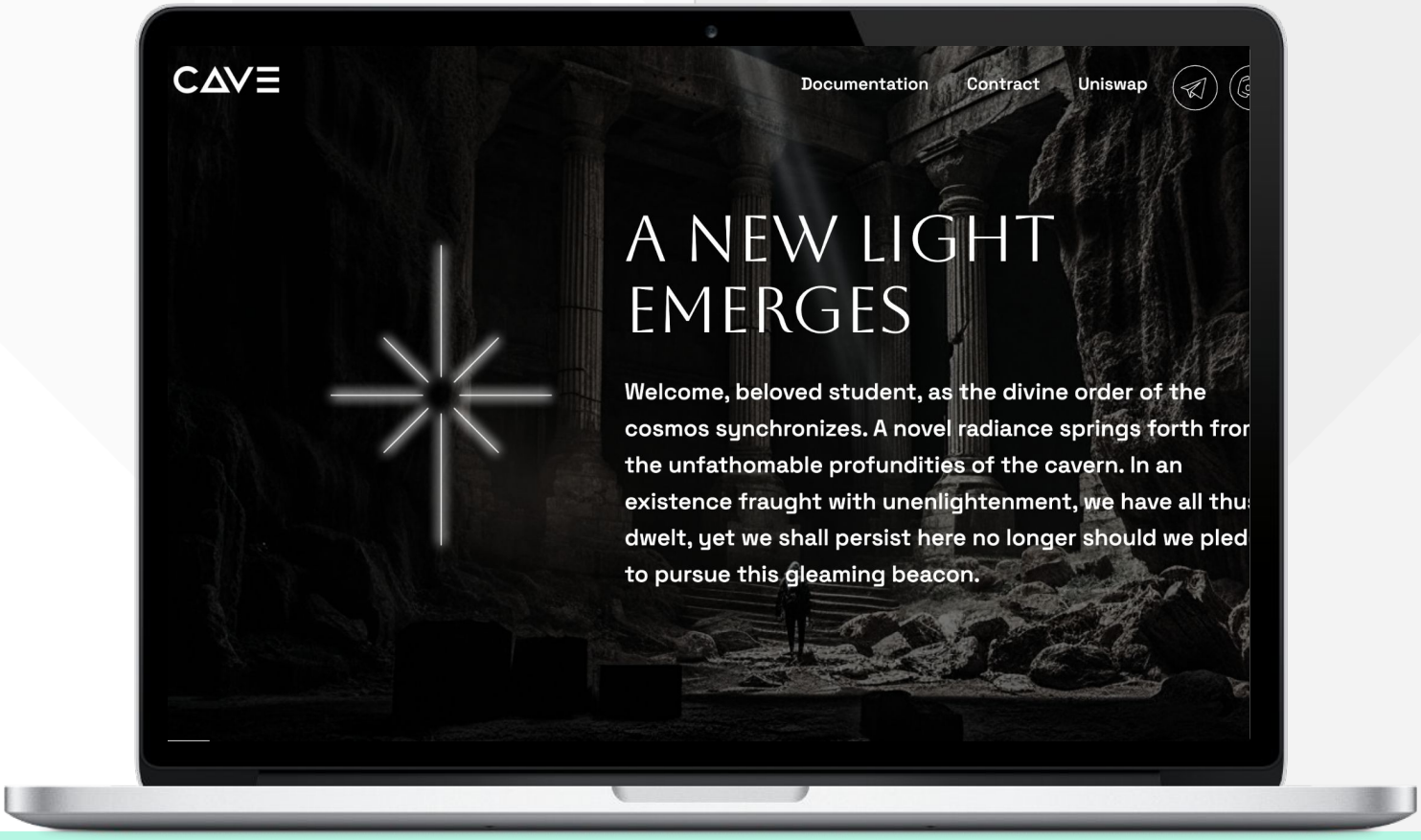
Design
Very nice design with appropriate color scheme and graphics.

Content
The information helps new investors understand what the product does right away. No grammar mistakes found..

Whitepaper
Yes, explanatory.

Roadmap
No

Mobile-friendly?
Yes



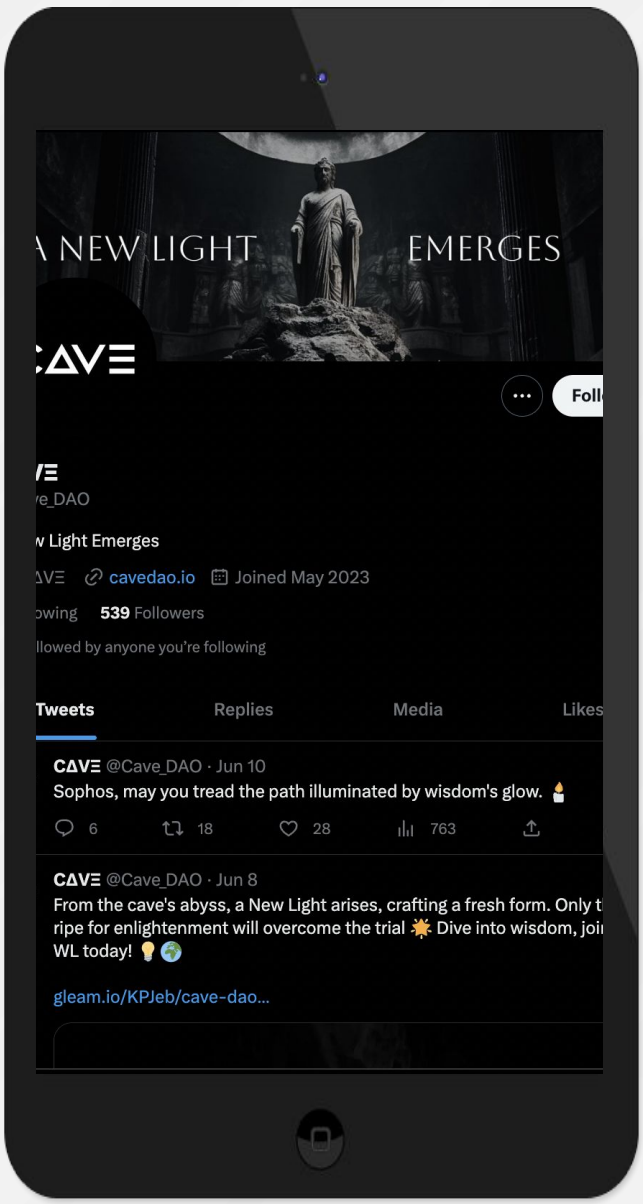
cavedao.io

SOCIAL MEDIA

& ONLINE PRESENCE

ANALYSIS

Project's social media pages are active



Twitter

@cave_dao

- 544 followers
- 3 total posts
- New account

Discord

https://discord.com/invite/BZkq88cwBv

- 351 members
- Active members
- Active mods

Telegram

@cavedaoportal

- 283 members
- Active members
- Active mods

Medium

- Not available

SPYWOLF

CRYPTO SECURITY

Audits | KYCs | dApps
Contract Development

ABOUT US

We are a growing crypto security agency offering audits, KYCs and consulting services for some of the top names in the crypto industry.

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Disclaimer

This report shows findings based on our limited project analysis, following good industry practice from the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, overall social media and website presence and team transparency details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report.
While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the disclaimer below – please make sure to read it in full.

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No applications were reviewed for security. No product code has been reviewed.